

Dominion Energy Nuclear Connecticut
Millstone Power Station
314 Rope Ferry Road
Waterford, CT 06385



U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Serial No.: 20-169
MPS Lic/LD R0
Docket No.: 50-423
License No.: NFP-49

MAY 28 2020

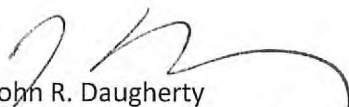
DOMINION ENERGY NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
LICENSEE EVENT REPORT 2020-002-00

AUTOMATIC REACTOR TRIP DUE TO MAIN GENERATOR GROUND FAULT

This letter forwards Licensee Event Report (LER) 2020-002-00, documenting an event at Millstone Power Station Unit 3, on April 1, 2020. This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in manual or automatic actuation of systems listed in 10 CFR 50.73(a)(2)(iv)(B).

Should you have any questions, please contact Mr. Jeffry A. Langan at (860) 444-5544.

Sincerely,


John R. Daugherty
Site Vice President – Millstone

Enclosure: LER 423/2020-002-00

Commitments made in this letter: None

cc: U.S. Nuclear Regulatory Commission
Region I
2100 Renaissance Blvd.
Suite 100
King of Prussia, PA 19406-2713

R.V. Guzman
NRC Senior Project Manager Millstone Units 2 and 3
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mail Stop 08 C-2
Rockville, MD 20852-2738

NRC Senior Resident Inspector
Millstone Power Station

ATTACHMENT

LICENSEE EVENT REPORT 2020-002-00
AUTOMATIC REACTOR TRIP DUE TO MAIN GENERATOR GROUND FAULT

MILLSTONE POWER STATION UNIT 3
DOMINION ENERGY NUCLEAR CONNECTICUT, INC.



LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oir_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

| | | |
|--|-------------------------------|-------------------|
| 1. Facility Name Millstone Power Station Unit 3 | 2. Docket Number 05000 423 | 3. Page 1 OF 3 |
|--|-------------------------------|-------------------|

| |
|---|
| 4. Title AUTOMATIC REACTOR TRIP DUE TO MAIN GENERATOR GROUND FAULT |
|---|

| 5. Event Date | | | 6. LER Number | | | 7. Report Date | | | 8. Other Facilities Involved | |
|---------------|-----|------|---------------|-------------------|---------|----------------|-----|------|------------------------------|------------------------|
| Month | Day | Year | Year | Sequential Number | Rev No. | Month | Day | Year | Facility Name | Docket Number |
| 04 | 01 | 2020 | 2020 | 002 | 00 | 05 | 28 | 2020 | Facility Name | Docket Number 05000 |

| | | | | |
|-------------------|---|---|--|---|
| 9. Operating Mode | 11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply) | | | |
| 1 | <input type="checkbox"/> 20.2201(b) | <input type="checkbox"/> 20.2203(a)(3)(i) | <input type="checkbox"/> 50.73(a)(2)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) |
| | <input type="checkbox"/> 20.2201(d) | <input type="checkbox"/> 20.2203(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(ii)(B) | <input type="checkbox"/> 50.73(a)(2)(viii)(B) |
| | <input type="checkbox"/> 20.2203(a)(1) | <input type="checkbox"/> 20.2203(a)(4) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(ix)(A) |
| | <input type="checkbox"/> 20.2203(a)(2)(i) | <input type="checkbox"/> 50.36(c)(1)(i)(A) | <input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A) | <input type="checkbox"/> 50.73(a)(2)(x) |
| 10. Power Level | <input type="checkbox"/> 20.2203(a)(2)(ii) | <input type="checkbox"/> 50.36(c)(1)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(v)(A) | <input type="checkbox"/> 73.71(a)(4) |
| 100 | <input type="checkbox"/> 20.2203(a)(2)(iii) | <input type="checkbox"/> 50.36(c)(2) | <input type="checkbox"/> 50.73(a)(2)(v)(B) | <input type="checkbox"/> 73.71(a)(5) |
| | <input type="checkbox"/> 20.2203(a)(2)(iv) | <input type="checkbox"/> 50.46(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(v)(C) | <input type="checkbox"/> 73.77(a)(1) |
| | <input type="checkbox"/> 20.2203(a)(2)(v) | <input type="checkbox"/> 50.73(a)(2)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(v)(D) | <input type="checkbox"/> 73.77(a)(2)(i) |
| | <input type="checkbox"/> 20.2203(a)(2)(vi) | <input type="checkbox"/> 50.73(a)(2)(i)(B) | <input type="checkbox"/> 50.73(a)(2)(vii) | <input type="checkbox"/> 73.77(a)(2)(ii) |
| | <input type="checkbox"/> | <input type="checkbox"/> 50.73(a)(2)(i)(C) | <input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A) | |

| | |
|--|--|
| 12. Licensee Contact for this LER | |
| Licensee Contact Jeffrey A. Langan, Manager Nuclear Station Licensing | Telephone Number (Include Area Code) (860) 444-5544 |

| 13. Complete One Line for each Component Failure Described in this Report | | | | | | | | | |
|---|--------|-----------|--------------|--------------------|-------|--------|-----------|--------------|--------------------|
| Cause | System | Component | Manufacturer | Reportable to ICES | Cause | System | Component | Manufacturer | Reportable to ICES |
| B | IPBU | | | | | | | | |

| | | | | | | | | | |
|---|--|--|--|------------------------------|--|--|-------|-----|------|
| 14. Supplemental Report Expected | | | | 15. Expected Submission Date | | | Month | Day | Year |
| <input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No | | | | | | | | | |

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On April 1, 2020, at 16:25, Millstone Power Station Unit 3 (MPS3) was in Mode 1 at 100 percent reactor power, when an automatic reactor trip occurred as a result of a main generator/turbine trip initiated by a main generator protection system actuation from a ground fault. All control rods inserted on the trip. The station electrical buses automatically transferred to their alternate offsite source.

The direct cause of the trip was a ground fault on the 'C' phase of the Normal Station Service Transformer (NSST) Isolated Phase Bus Duct (IPBD) due to water intrusion and buildup in an IPBD transition section which caused a turbine generator trip, and subsequently a reactor trip.

Access door gaskets in this IPBD section were sealed with RTV to prevent water intrusion and drains were installed on each phase of the IPBD.

The actuation of the Reactor Protection System (RPS) and the Auxiliary Feedwater System (AFW) is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in a manual or automatic actuation of systems listed in 10 CFR 50.73(a)(2)(iv)(B).

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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| 1. FACILITY NAME | 2. DOCKET NUMBER | 3. LER NUMBER | | |
|--------------------------------|------------------|---------------|-------------------|---------|
| | | YEAR | SEQUENTIAL NUMBER | REV NO. |
| Millstone Power Station Unit 3 | 05000-423 | 2020 | 002 | 00 |

NARRATIVE**1. EVENT DESCRIPTION**

On April 1, 2020, at 16:25, Millstone Power Station Unit 3 (MPS3) was in Mode 1 at 100 percent reactor power, when an automatic reactor trip occurred as a result of a main generator/turbine trip. The main generator trip was initiated by a main generator protection system actuation from a ground fault. All control rods inserted on the trip. A four-hour non-emergency notification was made for the actuation of the reactor protection system in accordance with 10 CFR 50.72(b)(2)(iv)(B). Following the trip, Main Feedwater was isolated as designed, and Auxiliary Feedwater (AFW) was automatically actuated to restore Steam Generator level. An eight-hour notification was made for the actuation of the auxiliary feedwater system in accordance with 10 CFR 50.72(b)(3)(iv)(A) and 10 CFR 50.72(b)(3)(iv)(B).

The main generator protection system actuation also resulted in switchyard breakers 13T and 14T opening, which de-energized the main generator step-up transformers and Normal Station Service Transformers (NSSTs). This caused a fast transfer of the station electrical buses from the NSSTs to the Reserve Station Service Transformers (RSSTs). The NSSTs and RSSTs provide the two independent sources of offsite power required by Technical Specifications. This event rendered the NSSTs inoperable as a source of offsite power. The NSSTs were restored on 04/09/2020 following the implementation of the corrective action for the ground fault.

Following the reactor trip, the 'A' Control Building Chilled Water (HVK) chiller tripped. The 'B' HVK chiller operated and maintained control room temperatures stable in the design band. The 'A' HVK chiller was restored at 07:01 on 04/04/2020. No cause of the trip was identified.

Following actuation of AFW, flow indication to steam generator 'B' on Plant Process Computer point FWA-F33B3 exhibited 100 gpm variations in flow. AFW flow was verified stable by observing alternative indications of flow to steam generator 'B', FWA-F51B3, and steam generator level. The plant was initially stabilized in Mode 3 with decay heat removal via the Auxiliary Feedwater system and condenser via the turbine bypass system.

At 22:01, approximately 5.5 hours after the reactor trip, the Main Steam Isolation Valves (MSIVs) were closed to maintain RCS temperature in the post-trip band, and decay heat removal was established via the Steam Generator Atmospheric Dump Valves, in accordance with station procedures.

The actuation of the Reactor Protection System (RPS) and the Auxiliary Feedwater System (AFW) is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in a manual or automatic actuation of systems listed in 10 CFR 50.73(a)(2)(iv)(B).

2. CAUSE

The direct cause of the trip was a ground fault on the 'C' phase of the Normal Station Service Transformer (NSST) Isolated Phase Bus Duct (IPBD) due to water intrusion and buildup in the transition section between the 54 inch, 24kV IPBD and the 24 inch, NSST IPBD which caused a turbine generator trip, and subsequently a reactor trip. Water entered the transition section of the IPBD due to an inadequate gasket installation at an access cover. No drains were provided in the transition section to allow any water that entered the transition section of the IPBD to drain out. Therefore, water intrusion, in conjunction with no means for water to drain, resulted in a buildup of water in the the transition section of the IPBD which caused the ground fault.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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NARRATIVE**3. ASSESSMENT OF SAFETY CONSEQUENCES**

There were no safety consequences related to this event.

As designed, operation of the main steam Atmospheric Dump Valves (ADVs) and turbine bypass valves prevented challenging the main steam safety valves following the reactor trip. The maximum Plant Process Computer (PPC) indicated Steam Generator (SG) pressure was 1083 psig, well below the nominal opening pressure of the first Main Steam Safety Valve (MSSV) at 1185 psig. No PPC indications of MSSVs opening were observed. As designed, following the trip, Main Feedwater was isolated and Auxiliary Feedwater (AFW) responded to restore SG level. All reactor coolant pumps continued to operate, and Reactor Coolant System (RCS) cold leg temperatures were maintained greater than 550°F following the event.

Following the reactor trip, the minimum post-trip pressurizer pressure was approximately 1982 psia, which is well above the Safety Injection (SI) setpoint (1892 psia). The minimum pressurizer level was 32% immediately following the reactor trip. The minimum pressurizer level remained above 26% after that due to RCS slight cooldown.

Following the reactor trip, control room area temperature (ECS-T64) remained steady. Also following the trip, containment temperature increased by approximately 4°F, and containment pressure increased by less than 0.1 psi. At approximately 19:47, the 'A' Reactor Plant Chilled Water Chiller was restarted, and containment temperature and pressure returned to their pre-event values. The values remained within the bounds of technical specifications 3.6.1.5 and 3.6.1.4 and there was no challenge to the containment pressure and temperature control safety function.

No safety functions were challenged, and plant operation was maintained within the bounds of FSAR Chapter 15 safety analysis. This event did not challenge the health and safety of the public or the environment.

4. CORRECTIVE ACTION

Access door gaskets in this IPBD section were sealed with RTV to prevent water intrusion and drains were installed on each phase of the IPBD.

Additional corrective actions are being taken in accordance with the station's corrective action program.

5. PREVIOUS OCCURRENCES

There have been no automatic reactor trips at MPS3 with a direct cause linked to the Main Generator ground fault in the past 3 years.

6. Energy Industry Identification System (EII) codes

- IPBU - Bus, Isolated Phase